THE EFECT OF EXTRUDED CORN ON THE ECONOMIC RESULTS OF BROILERS PRODUCTION

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ABSTRACT: Aviculture enables acquiring of significant amounts of highly valuable products: meat and eggs, in the relatively short period of time. Production of fatty poultry practically presents the most intensive branch of the animal husbandry. The reproduction process is relatively short, which enables faster turnover of the engaged resources. Consequently, products which are cheaper compared to other kinds of meat are obtained, considering that production expenses have very important role. One of the ways to influence economic results is the use of extruded feed. This way enables the achievement of lower wastage and better production results, influencing directly the economic results of the production in such a way. Research of the economic results of the production of fatty poultry is based on the determination of the total production cost, value of the production and the financial result. Calculation of these economic categories is based on the data gathered on the selected households. The results obtained show measurable differences in the use of the extruded feed compared to the classic feeding system.

Keywords: *chickens production, extruded corn, price*

INTRODUCTION

Animal husbandry presents the most intensive branch of agriculture and has multiple significances, for both producers and consumers. The increase in the production of the meat, milk, eggs, among others is the foundation for the improvement of the nutrition structure of the population with highly valuable animal proteins.

Production of the fatty poultry presents a form of agricultural production, which is, by its nature, closest to the industrial production. Accordingly, great work productivity and control of production processes is achieved (Filipović et al., 2009).

The solution of increased food production for people and animals is appliance and usage of new technologies in biotechnology, e.g. bio industry (Lazarević i sar., 2005). The main orienttation is presented by new technological processes which aim at the increase of nutritive value of the food for people and animals. Nowadays, many ways of thermal processing of oilseeds and cereals are used in the world: toasting, hydrothermal refinement, micronisation, microwave treatment, bielectrical heat treating (Marsman et al., 1998), but in Serbia the most often used are the process of extrusion and hydrothermal process (Sa-

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kač et al., 2001; Filipović et al., 2007; Kormanjoš at al. 2007).

In the domestic production of forage mixtures, the corn has the leading position compared to other cereals, because of high energy content (16.2 MJ/kg), starch, comparably big content of oil and low level of cellulose. Corn, apart from the best digestibility, also has the best taste compared to other grains (Bekrić, 1999).

Proper conduction of the thermal process provides the reduction of thermo labile antinutritients to an acceptable level, increase of digestibility of some nutritients (proteins, oil, carbohydrates), as well as the improvement of sensory features and the microbiological picture of the final product (Filipović et al., 2003; Kormanjoš et al., 2007a). Parallel with the reduction of the content of the antinutritients it is necessary to preserve nutritionally valuable thermo labile components, so the process requires finding a compromise between the two efforts.

MATERIAL AND METHODS

Estimation of production expenses of fattening poultry in case of extruded and non extruded corn in forage mixtures is based on natural indicators determined based on the research conducted at the examined farm. It is an individual household which has its own food production for animals, with a farm capacity 3000 fattening chicken in turnus. During the fattening, feeding of one half of chicken was practiced with the food that contained extruded corn (experiment E), while the other half was fed with a mixture in which the corn has not been treated (control C). Calculation of the expense for food has been derived according to the standard of expenses for the preparation of animal food, based on market prices of certain kinds of food and experience normative. The expense for other material has been calculated according to the expenditure made on the observed farm and market prices. Investments into buildings and the equipment have been calculated based on standard investments in objects and equipment. Expenses of the buildings and equipment amortisation have been derived based on the assumed lifetime of the utilised means (Marko et al.,

1998). Expenses for salaries have been calculated in accordance with realised expenses. Expenses for the energy consumption have been calculated on the basis of realised expenditure of the electrical power and fuel. Apart from that, the calculation includes expenses of veterinary and selection services. Calculation of the income is based on clarification of total income from the above mentioned production, whereby the financial result presents the income from the overall production (Andrić, 1998).

RESULTS AND DISCUSSION

During the analysis of the observed production, production results for both groups have been followed closely. The follow up was conducted on a weekly level. It is extended fattening in duration of seven weeks. Since the feeding regime has different effects depending on the age of the poultry, better insight into the overall effects of the food with extruded corn was enabled. The main production indicators are given in the Table 1. Lower mortality rate could be pointed as the most obvious result of the usage of extruded corn in feeding. In case of feeding with forage mixture with addition of non extruded corn, 96 chickens have died in total. If this is compared to the mortality in case of feeding with the mixture with extruded corn (20 chickens), it is possible to draw a conclusion about the great advantages to the usage of extruded corn in food for maintaining health condition of the poultry. Besides, provided results are specially expressed in the first four weeks of the fattening (Graph 1).

The second factor of significance for the overall production and the achieved economic result is the conversion of food. The calculation of the achieved conversion shows that the group fed with the extruded corn achieves better conversion whereby, on the level of the overall fattening makes 2.04 gr of forage mixture per kilogram of weight gain. Feeding with the forage mixture, the achieved conversion of the food is 2.13 kg per kilogram of the weight gain. The overview of the conversion change during the fattening gives a better insight into the food conversion. The overview has been made according to the available data and is given on the Graph 2.

Table 1.
Basic production indicators of poultry fattening

Period days	Body weight (gr)	Total food consumption (kg)	Mortality (pcs.)	Number of the flock in the fattening (pcs)	Body weight (gr)	Total food consumption (kg)	Mortality (pcs.)	Number of the flock in the fattening (pcs)
0	44.2			1,500	44.2			1,500
0-7	127.5	200	6	1,494	111.5	215	10	1,490
0-21	565.0	1,250	8	1,486	519.0	1.265	53	1,437
0-28	966,0	2,250	2	1,484	907.0	2.255	23	1,414
0-35	1.490.0	3,650	1	1,483	1,420.0	3.645	3	1,411
0-42	1.985.0	5,250	2	1,481	1,940.0	5.210	3	1,408
0-49	2.760.0	8,350	1	1,480	2,780.0	8.330	4	1,404

conversion of food (kg)
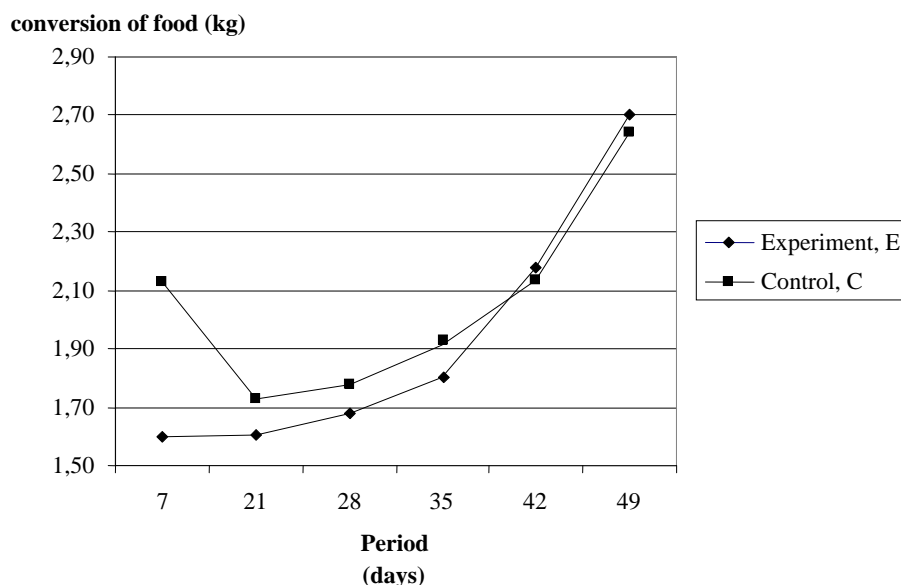
Graph 1. Conversion of food during the fattening of poultry

It is obvious from the Graph that feeding chickens with extruded corn gives better results at the beginning of the fattening, whereby very beneficial effects on younger categories of poultry are shown once again. If we take a look at the Table 1 in the previous part of the paper, one can draw a conclusion about the almost same expenditure of food in both groups observed.

Also, the group fed with food with the addition of extruded corn has bigger number of fattening chickens at the end of the fattening and achieves higher value of the production.

Total cost of the food makes 3.014,05 € for the group fed with the food with addition of extruded corn, or 3.008,85 € for the group fed in standard way. Accordingly, the cost of feeding per chicken has been calculated and it presents 2,04 € for the first group, and 2,14 € for the second group, which is 5.23% higher value that directly influences growth of the overall cost.

The analysis of the overall economic indicators of the observed production starts from the assessed investment into the farm, in other words investment into the buildings for breading with the following equipment.

According to the assessment, the investment into the buildings and equipment amount to 28,500.00 €. Calculation of other expenses (energy, work and additional materials) of the production, has been derived per turnus and is given in the Table 2.

Table 2.
Summary overview of other expenses per turnus (€)

Description	Unit	Quantity	Price	Total
Bedding	bale	120.00	1,05	126,00
Vaccine	pcs.	3,000.00	0,0068	20,40
Vaccine	pcs.	3,000.00	0,0142	42,60
Vitamins	pcs.	1.50	23,16	34,74
Revaccination	pcs.	3,000.00	0,01	30,00
Revaccination	pcs.	3,000.00	0,01	30,00
Electric power	-	-	194,70	194,70
Gas	-	-	315,80	315,80
Salaries	-	-	336,80	673,60
Total				1.467,84

Table 3.
Calculation of the total expense and the price, €

Expense category	E			C		
	Total expenses	Price, €	%	Total expenses	Price, €	%
Amortisation	705,00	0,48	15,83	705,00	0,50	15,84
Food expenses	3.014,05	2,04	67,66	3.008,85	2,14	67,62
Salaries	336,84	0,23	7,56	336,84	0,24	7,57
Expenses for the energy	255,26	0,17	5,73	255,26	0,18	5,74
Expenses of other and additional materials	143,68	0,10	3,23	143,68	0,10	3,23
Total	4.454,84	3,01	100,00	4.449,64	3,17	100,00

The expenses presented refer to the both groups of fattening chickens observed. In the distribution, they were divided proportionnally to the starting number of chickens, e.g. two equal groups. Accordingly, the given category of expenses amounts to 735,79 per observed group, or 0,49 € per fattening chicken.

In accordance with the derived calculations, establishing of the total expense and the price of the fattening chicken has been de-

rived. Calculation of these indicators is presented in the Table 3.

Calculation of the income includes the incomes the farm achieves and is based on the sale of fattening chickens. On sale, the price that was achieved was 1,26 €/kg. In accordance with the number of fattening chickens breed, average weight reached and the sale price, the calculation of the total income has been made. Calculation of the total income is give in the Table 4, according to the observed groups, and based on that the benefit has been calculated as the difference between the income and expense.

Table 4.
Benefit calculation, €

Description	E	C
Total income	5.159,75	4.930,26
Total expense	4.454,84	4.449,64
Benefit	**704,91**	**480,62**

If the realised benefit is calculated per kilogram of produced chickens, we get 0,18 €/kg for the group fed with the mixture with addition of extruded corn, and 0,12 €/kg for the group fed with standard forage mixtures. The economy calculated from the ratio of total income and total expenses makes 1,16 for the group fed with the mixture with extruded corn and 1,11 for the group breed by the standard feeding system.

Profitability of the production is obtained from the ratio of realised benefit and total investment. Total investment includes investments into the buildings and equipment and investment into the unfinished production within the fattening. Thereat, in total five turnuses are foreseen per year. Binding of means in the form of debits has not been calculated; instead the calculation has been derived with an assumption of advance payment. Profitability of the overall production process in the observed case is not hard to establish, since it is concentrated and monophase production. Realised profitability for the group fed with the mixture with addition of extruded corn was 10,7% and 7,3% for the group fed with standard forage mixtures. In both cases the obtained value is low.

CONCLUSION

Lucrativeness and profitability of the production are the most important principles and the basis of rational business in the marker economy, which is all and more becoming an imperative for our production too. Economic results of the production of fatty poultry have in the paper been analysed from the narrower producers' perspective and what can be concluded is the following:

- The profit achieved per one turnus amounts to 704,91 € for the group fed with the mixture with addition of extruded corn and 480,62 for the group breed by standard forage mixtures, e.g. 0,18 €/kg and 0,12 €/kg per kilogram of produced chicken.

- Economy calculated from the ratio of total income and total expense makes 1.16 for the group fed with the mixture with addition of extruded corn and 1.11 for the group breed by standard feeding system.

- Detailed analysis of economic indicators shows very low profitability of the production. The realised profitability of the production makes only 10,7% for the group fed with the mixture with addition of extruded corn and 7,3% for the group breed by standard forage mixtures. The obtained values in both cases very low and indirectly points to the need for the state subventions of investments in this sphere.

- Regardless of that, all presented indicators point out the justifiability of the usage of extruded corn in the preparation of food for animals.

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